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DEFENDING THE TEACHING OF EVOLUTION IN THE PUBLIC SCHOOLS

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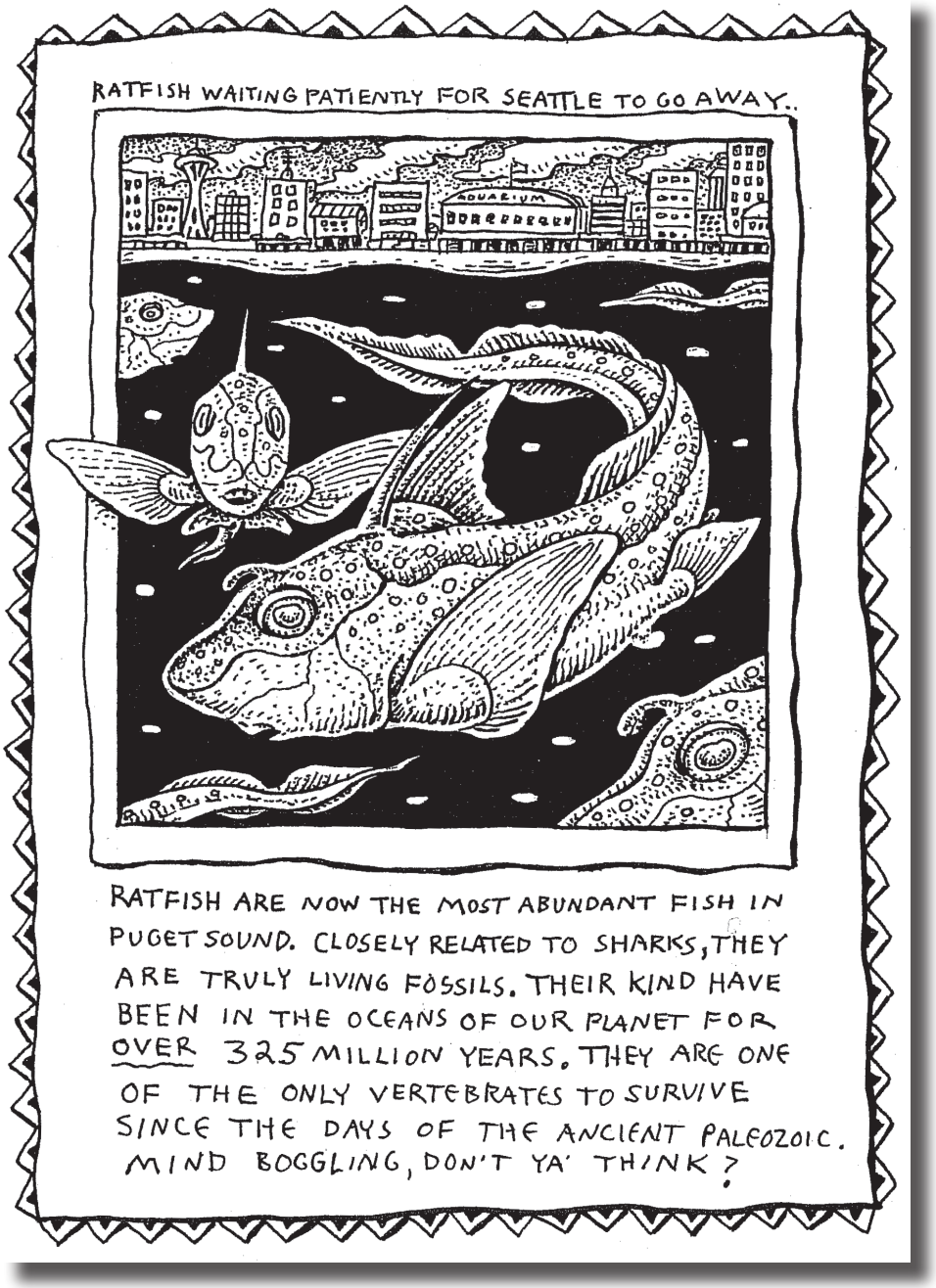

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NCSENEWS News from the Membership *Glenn Branch*

From time to time we like to report on what our members are doing. As the following list shows, they—and we—have a lot to be proud about!

Philip Appleman contributed "The labyrinth: God, Darwin, and the meaning of life" to the February/March 2011 issue of *Free Inquiry* (31[2]:16–26), expounding on the inspiration he finds in evolution. He concluded by praising

> the ephemeral but genuine joy of the human experience. That joy does not depend on mysticism or dogma or priestly admonition; it is the joy of human life, here and now ... Charles Darwin's example, both in his work and in his life, helps us to understand that that is the only "heaven" we will ever know. And it is the only one we need.

Emeritus Professor of English at Indiana University, Appleman is also the editor of the Norton Critical Edition of *Darwin* (New York: WW Norton, 2000), now in its third edition. A review of a new edition of his book of poetry *Darwin's Ark* appeared in *RNCSE* 2010 Sep/Oct; 30(5):36–37.

Lorence G Collins reports by e-mail, "My [January 18, 2011] talk at the Emmanuel Lutheran Church in Naples, Florida, on 'Scientific evidence against creationism' went well. There were 102 people in attendance, a few of whom were creationists. There was a half hour of questions afterwards that produced a good discussion of the issues. The creationists still did not want to give up their beliefs, which is not unexpected." A retired professor of geology at California State University, Northridge, Collins writes extensively to promote general knowledge about geology and to counter creationist arguments; his latest article for *RNCSE*, coauthored with Barbara J Collins, was "Origins of polonium halos" (*RNCSE* 2010 Sep/Oct; 30(5):11–16).

Responding to a creationist's letter to the editor of the *Casper Star-Tribune*, **Russell J Hawley** explained, in a November 18, 2010, letter, that the Cambrian explosion was consistent with evolution but not with young-earth creationism:

> Remember, according to the creationist model all of the families of animals were created within two days, less than 10 000 years ago. If this is what really happened, then we should expect to find members of modern animal families in rocks of Cambrian age. Do we? You don't have to leave Wyoming to test this hypothesis—the Gros Ventre formation and the Gallatin limestone, good exposures of which can be found in the Owl Creek Mountains, both date from the Cambrian period. Paleontologists have been collecting fossils there for years. Have they found fossils belonging to modern families like cockles, oysters, barnacles or crabs? No, they have not. Most of the fossils of the Gros Ventre and Gallatin are trilobites, which not only belong to extinct families but an entire extinct class.

He concluded, "Students should be taught what the Cambrian explosion really was—one of the most important events in evolution, not evidence for creation." Hawley is the Education Coordinator at the Tate Geological Museum at Casper College.

Jonathan Marks's *Why I Am Not a Scientist: Anthropology and Modern Knowledge* (Berkeley [CA]: University of California Press, 2009) was published. According to the publisher:

> This lively and provocative book casts an anthropological eye on the field of science in a wide-ranging and innovative discussion that integrates philosophy, history, sociology, and auto-ethnography. Jonathan Marks examines biological anthropology, the history of the life sciences, and the literature of science studies while upending common understandings of science and culture with a mixture of anthropology, common sense, and disarming humor. Science, Marks argues, is widely accepted to be three things: a method of understanding and a means of establishing facts about the universe, the facts themselves, and a voice of authority or a locus of cultural power. This triple identity creates conflicting roles and tensions within the field of science and leads to its record of instructive successes and failures. Among the topics Marks addresses are the scientific revolution, science as thought and performance, creationism [the topic of the fifth chapter of the book], scientific fraud, and modern scientific racism. Applying his considerable insight, energy, and wit, Marks sheds new light on the evolution of science, its role in modern culture, and its challenges for the twenty-first century.

Marks is Professor of Anthropology at the University of North Carolina, Charlotte.

Prompted by Michael B Berkman and Eric Plutzer's recent column in *Science* deploring "a pervasive reluctance of teachers to forthrightly explain evolutionary biology," *Popular Mechanics* asked **Bill Nye** for his reaction. "It's horrible," Nye replied. (His full reply is available on-line at <http://www.popularmechanics.com/science/environment/evolution-classroom-bill-nye-science-education>). He explained,

Glenn Branch is NCSE's deputy director.

> Science is the key to our future, and if you don't believe in science, then you're holding everybody back. And it's fine if you, as an adult, want to run around pretending or claiming that you don't believe in evolution, but if we educate a generation of people who don't believe in science, that's a recipe for disaster. ... The main idea in all of biology is evolution. To not teach it to our young people is wrong.

Nye was particularly concerned with the characterization of evolution as "just a theory," arguing, "People make flu vaccinations that stop people from getting sick. Farmers raise crops with science; they hybridize them and make them better with every generation. That's all evolution. Evolution is a theory, and it's a theory that you can test. We've tested evolution in many ways. You can't present good evidence that says evolution is not a fact." A Supporter of NCSE, Bill Nye "The Science Guy" was the host of the popular science education television programs *Bill Nye the Science Guy*—which won 18 Emmys—and *The Eyes of Nye*; he is currently the executive director of the Planetary Society, the world's large space interest organization.

Robert T Pennock received a Distinguished Faculty Award from Michigan State University, where he is a professor in the Department of Philosophy. The citation explains:

> Robert T Pennock's interdisciplinary scholarship richly informs his teaching and engagement. One major strand of his work, on the philosophy of evolutionary biology, is a critical assessment of the new creationism, or intelligent design, theory. His book *Tower of Babel: The Evidence against the New Creationism* has been lauded by peers as the best book on creationism in all its guises. A second strand, underpinning the NSF Science and Technology Center Bio/computational Evolution in Action CONsortium, known as BEACON, is Pennock's theoretical and empirical research with biologists and computer scientists on artificial life and evolving digital organisms. A third strand, his research on the evolution of complexity, intelligence and altruism, involves central philosophical questions about ontology, epistemology and ethics.

Pennock commented, "I am pleased and honored to receive this award, but I am even more pleased and honored to be a part of the MSU community of scholars and friends. As someone whose interests do not fit easily under a single heading, I could not imagine a more hospitable intellectual climate for interdisciplinary research."

Donald Prothero contributed two book reviews to a recent issue of *Skeptic* (16[2]:51–52 and 58–61). Of **Richard Milner**'s *Darwin's Universe: Evolution from A to Z* he wrote, "There is a little something here for everyone, from the scholar and scientist to the lay reader just interested in the connection between evolution and pop culture. More importantly, the book seems to reach a readership that might never touch any other book on evolution, because it is so charming and entertaining as well as informative." Of *Stephen Jay Gould: Reflections on His View of Life*, edited by **Warren D Allmon**, NCSE Supporter **Patricia H Kelley**, and Robert M Ross, he wrote, "it is probably the most complete assessment of Gould from the perspective of scientists who knew him and his work best, and gives an insider's view on what made him tick, and how the paleontological community regards him." Prothero is Professor of Geology at Occidental College and Lecturer in Geobiology at the California Institute of Technology. He is the author of numerous books, including *Evolution: What the Fossils Say and Why it Matters* (New York: Columbia University Press, 2007). Of interest in the same issue of *Skeptic* is Paul F Deisler Jr's "How did life begin?" (34–40).

Toby Rossman spoke on "How evolution happens: Lessons from molecular biology" to the Hudson Valley Science Café on October 27, 2010. She commented by e-mail, "I was able to introduce the audience to what's been happening in the field of molecular evolution, but at a lay person's level. The presentation was extremely well-received, and I have been asked to present elsewhere." Rossman is Research Professor in the Institute of Environmental Medicine at New York University's Langone Medical Center.

Robert J Schneider contributed "Darwin among the theologians" to *The Torch* (2011; 84[2]:9–13; available on-line at <http://www.torch.org/pdfs/Winter%202011.pdf>), the quarterly newsletter of Torch, a group describing itself as "an international association of local clubs in which respected persons practicing recognized professions enjoy the cultural interchange of knowledge." In his article, Schneider discussed the varieties of theistic evolutionism, concluding that the authors he discusses

> present a theology of creation that draws from biblical themes and responds positively to the latest scientific understanding of the world. Just as scientists have revised their story of nature in the light of new discoveries, models and theories, giving to humanity an evolving and evolutionary narrative, so theologians are developing a comparable narrative of divine action in creation. Their reflections offer ways to affirm faith in creation while reinterpreting its meaning in light of the new universe story science has written.

Schneider is Distinguished Professor Emeritus of General Studies and Professor Emeritus of Classical Languages at Berea College. A former member of the Episcopal Church's national Committee on Science, Technology, and Faith, he chaired its subcommittee on Creation, which prepared the church's "Catechism of Creation."

from THE STAFF

With the redesign of *RNCSE*, we are pleased to introduce a new feature: "From the staff". This regular column will let you know what we have been doing at NCSE headquarters to defend the teaching of evolution in the public schools.

GLENN BRANCH writes:

A fair amount of my time in late January and early February was occupied in publicizing Darwin Day events by e-mail. It wasn't a tremendously difficult chore, of course. Armed with the list of events at the Darwin Day website, along with various reports in the media and tips from friends, whenever I had a spare moment, I would simply press the send button to inform all of the NCSE members within twenty-five or fifty miles of a given event to tell them about it.

But I had the opportunity to do a little buttonholing (as it were) in person, too. On the afternoon of February 11, 2011—the day before Darwin Day; should we call it Darwin Eve?—I was stopping by at the copy shop in Berkeley that we use for short print runs, to have a few articles photocopied in preparation for the Sacramento Darwin Day event, at which Barbara Forrest was speaking and at which I was running NCSE's information table.

As I was assembling the articles to copy, a woman in the shop spotted the cover of the January 2009 issue of *Scientific American*, and said, "Hey, is that Darwin? I love Darwin!" What could I do? I dashed back to my car to get her one of NCSE's new buttons—showing a photograph of the elder Darwin along with the URL of NCSE's website—along with a business card, and while the photocopier was churning away, I told her about the Darwin Day talk that Josh Rosenau was giving in Albany, Calfornia.

I don't know whether she managed to make it there—she said that she was busy trying to buy a new house, which is always a time-consuming project—but Josh's talk was well-attended, I hear. Meanwhile, in Sacramento, there were somewhere between two and three hundred people in attendance for Barbara's talk. She was proudly wearing her ncse.com button, which I slipped her before the talk, and if anyone in the audience got away without a button, it wasn't for want of my trying!

JOSHUA ROSENAU writes:

I recently spent a day at the University of North Carolina's research library, looking through archives from Maynard Shipley's Science League of America. Shipley, a science writer, organized the Science League in the 1920s to defend the teaching of evolution in public schools. From the clippings and membership newsletters in the library I learned how, from his home in the San Francisco Bay Area, Shipley drew together a network of activists and scientists to monitor anti-evolution activities across the country, and fought back the forces pushing laws like the one at issue in the Scopes trial. The parallels with our work at NCSE are striking, including Shipley's difficulty raising funds. As the Great Depression cut into dues ($3/year), one member even paid by sending rabbits!

Photograph: Robert Lubn

Like NCSE, the SLA struggled with how and when to engage in debates with creationists. Shipley's distaste for debate began before his foray into the creationism/evolution controversy, when he twice debated Emma Goldman; he defended his socialism against her anarchist beliefs. Clippings show how audiences saw the debates between Shipley and creationists through partisan lenses. A newspaper reported, under the headline "9000 Cheer and Heckle Speakers; Audience Divided Three Ways," that "[s]ome 3000 ardent believers in fundamentalism cheered Dr Straton's scathing arraignment of Darwin's monkey-to-man theory; 3000 devotees of modernism applauded Professor Shipley's learned discourse on facts and theories of science; while another and different 3000 acclaimed impartially the not infrequent personal jibes indulged in by each speaker at the expense of the other."

While on campus, I had the opportunity to have lunch with Michael Lienesch, a professor at the University of North Carolina who used social movement theory to examine the rise of fundamentalism and fundamentalist anti-evolutionism in the 1920s in his *In the Beginning: Fundamentalism, the Scopes Trial, and the Making of the Antievolution Movement* (Chapel Hill [NC]: University of North Carolina Press, 2007). We talked about Shipley's work, and the relationship between anti-evolution laws being considered today and the laws Shipley fought 85 years ago. And when I returned from North Carolina, two anti-evolution bills had just been introduced in the Tennessee General Assembly. It was back to the grindstone for us at NCSE.

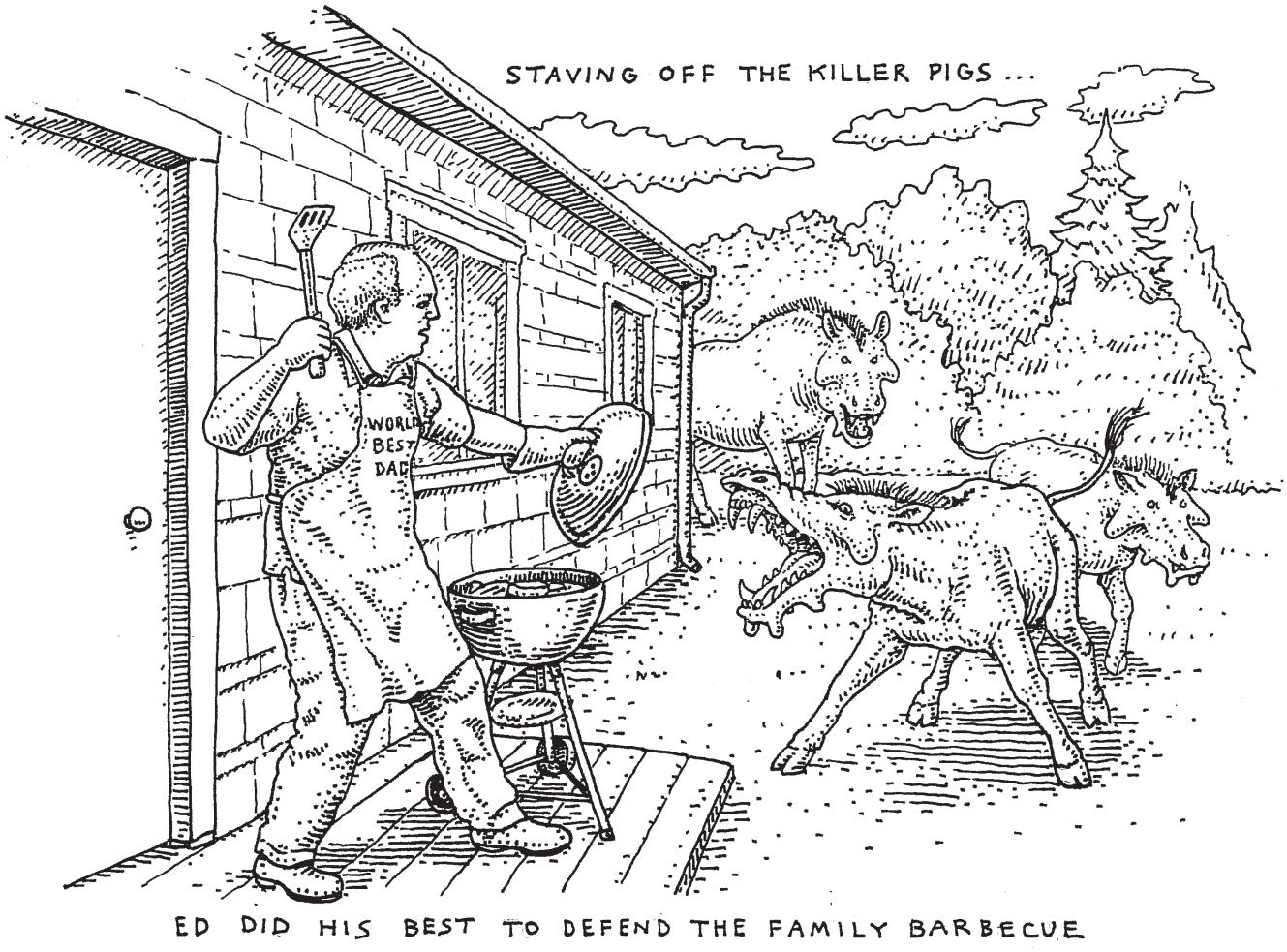
EUGENIE C SCOTT writes:

We stood there next to the withered, barely-living mulberry tree, which leaned at an angle with its major branches and trunk segments propped up with struts. Randal Keynes's soft voice pointed out an upper-story window where his grandmother had played with the other Darwin grandchildren during the summers they spent with Grandmama Emma Darwin at Down House. Although a strong sense of history permeated my entire visit there, perhaps the strongest was this juxtaposition of the old tree and the living link of the Darwin descendent, so knowledgeable about his ancestors who lived in this lovely home set on a ridge in the rolling country south of London. And how grateful I was that Randal and other family members of the Darwin Trust had saved Down House to become a museum that I and others could enjoy.

When *The Rough Guide to Evolution* author Mark Pallen suggested a "Darwin's Tour of England" itinerary after a speaking engagement in Manchester, how could I turn down such a great idea? I traveled to London (where Darwin and his bride, Emma, lived after he returned from the *Beagle* voyage) to Down House (where they raised their large family and he produced volumes of research and theory), to Cambridge (where he enjoyed three years of undergraduate education), to Malvern (where he took the quack "water cures" and where his beloved daughter Annie died), to Shrewsbury (where he was born and grew up), and even a side excursion to Birmingham, where I visited grandfather Erasmus Darwin's house and Soho House, where poet and inventor Erasmus and other intellectuals of the Lunar Society had met, defining English arts and letters for the late 18th century.

It got me thinking about how much I would love to share such a trip with NCSE members. Maybe I'll figure out how to do that. (In fact, I think that I will!) I know that tracing Darwin's footsteps and actually standing in the places that were meaningful to him helped cement in my mind not only his accomplishments but also Darwin the human being. I *knew* a lot about Darwin before. I *feel* a lot more about Darwin now.

Photograph: Eugenie C Scott



ARTICLE SUMMARY

Recent Advances on the Origin of Life – Making Biological Polymers

Michael A Buratovich

The creationism–evolution debate almost always comes around to the origin of life. The enormousness of the problem of how organic chemicals (those compounds that contain carbon) reacted to synthesize biologic molecules like proteins, nucleic acids, and membrane lipids, and how these were replicated and assembled to form the first protocells, represents an attractive target for critics. There is a respectable degree of uncertainty in this field, and a diversity of the proposed solutions. Consequently, creationists have said much about this research—none of it positive. However, in the six decades of research in this area, a number of these criticisms have been addressed, and recent advances answer many of the standard stock objections against chemical evolution.

Amino acid and polypeptide synthesis

In 1953, Stanley Miller launched origin-of-life research with a paper that showed that the synthesis of amino acids (the building blocks of proteins), under what were thought to be reasonable prebiotic conditions, is remarkably simple (Miller 1953). Making amino acids is possible, but what about linking them together to form polypeptides? Leman and others (2004) recently showed that a simple gas expelled by volcanoes (carbonyl sulfide) can link amino acids together under very mild conditions that do not threaten their stability. So volcanic eruptions could have supported the production of amino acids and linked them together to form simple proteins.

Living organisms almost exclusively utilize left-handed forms of amino acids, but Miller's experiment produced mixtures of right- and left-handed forms. Recent studies show that there are natural mechanisms that tend to preserve left-handed amino acids, such as polarized light in our region of the galaxy and a tendency for evaporation to preserve left-handed forms when a solution contains a slight excess of these.

The "RNA first" hypothesis

The prevalent theory in origin-of-life research postulates that RNA was the first molecular basis for life. Modern cells use RNA for many central cellular processes: translation (protein synthesis), RNA processing and splicing, maintenance of structures that cap linear chromosomes, RNA editing, and regulation (Gesteland and others 2006: 287–467). Likewise, RNA initiates some cellular processes: RNA primers must initiate DNA synthesis, and building blocks for DNA synthesis are made first as RNA building blocks and then converted by an enzyme into DNA building blocks.

In order to form something that resembles a cell, self-replicating RNA molecules had to assemble inside a membrane-like structure to form a "protocell" that could not only fuse with other protocells, but divide by budding into smaller protocells and are subject to natural selection. This is still an area of very active research.

Summary

Critics complain that these models do not provide enough "tools" to perform all the functions that life requires. What they ignore that at the earliest stages in the history of life, you do not need a two-story house with central heating and plumbing; you only need a tent, and a hammer is all you need to put up a tent. The fact that RNA molecules with randomly-generated sequences can display the activities that they do is a testimony to the versatility of RNA ribozymes and the possibilities available to prebiotic reaction schemes on the early earth. Furthermore, the fact that ribozyme and protein-based polynucleotide polymerases use the same enzymatic mechanism is certainly not a coincidence (Buratovich 2006), but is more satisfactorily explained by common ancestry.

Many important questions remain in origin-of-life research. Yet despite the multitudes of questions that still remain, origin-of-life research has made some remarkable advances in the last decade, and several standard problems have been satisfyingly answered.

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How to Humanize Knowledge, or CSI: Evolution and Climate Change

Kevin C Armitage

We live in a country where about 45% of citizens believe the earth is less than 10 000 years old. More important than this lack of basic scientific knowledge is the widespread misunderstanding over the way science works and why: how the quantification, testing, and revision of hypotheses creates new knowledge. Consequently, scientific understanding only minimally impacts our public debate.

Speaking to the American Association for the Advancement of Science in June 1922, historian James Harvey Robinson (1922) noted that the discoveries of science had changed the impact of commonly held cultural ideas, and he expressed concern about how ignorance about science can impair the quality of civic debate.

Evolutionary science in everyday life, or at least on television

How many fans of popular television shows such as *CSI: Crime Scene Investigation* recognize that the very same genetic information used to unravel crimes is also giving modern researchers an unparalled understanding of evolutionary history? How many American citizens know that the same DNA that solves paternity suits in a court of law deciphers the evolutionary heritage of species in the court of scientific evidence?

Television programs such as *CSI* succeed in making science sexy and fun because, in the words of Robinson, they *humanize* science. "Once it was well to dehumanize science," argued Robinson; "now it must be rehumanized." To "rehumanize" science—especially evolutionary science—is to demonstrate how it applies to the entirety of life rather than boxing it into a category of knowledge removed from the problems of day-to-day existence. Educators should follow this lead and emphasize to the public how evolution helps us understand—and thus respond intelligently—to one of the greatest challenges facing humanity: global climate change and its attendant problems.

Making it personal

As with evolution, the public is largely misinformed about the science of climate change. Also like evolution, climate change appears isolated from day-to-day life, easily dismissed because of its supposed remoteness. Yet many of the changes brought about by climate change can only be explained by evolution: the process of organisms' adapting—or failing to adapt—to changing environments.

Bradshaw and Holzapfel (2006) argued in *Science*: "recent studies show that over the recent decades, climate change has led to heritable, genetic changes in populations of animals as diverse as birds, squirrels, and mosquitoes." The changing fitness of mosquitoes provides one of the most vivid and worrisome examples of species' evolving in response to climate change. The World Health Organization already suspects that climate change is responsible for increased rates of malaria in industrialized countries.

Evolution and the effects of climate change go together because disease vectors survive and reproduce within specific climatic conditions. The WHO estimates that global temperature increases of 2–3°C would increaase by hundreds of millions the number of people at risk for malaria. If we are to meet the great challenges of climate change—and the very existence of our society may depend upon it—the public must have a basic understanding of evolution. Given the history of the reception to evolution in the US, that is no easy task.

The moral imperative

To wield this tool effectively, we must humanize evolution by putting it to use understanding and solving environmental problems. We must combat the grossly unfair association of evolution with immorality. Those of us trained in the humanities and social sciences—by definition the humanizers of knowledge—have a special duty to use our training to show the vital role of evolutionary thought in problem solving.

To succeed at this, we must insist—and demonstrate—that evolution is a tool of fundamental importance if we are to respond successfully to serious problems we face. Denying this essential tool for understanding our ecological predicament is gravely immoral. Our future depends upon our ability to humanize this knowledge, making it a vital tool of public debate.

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Don Aguillard

Randy Moore

Don Aguillard (left) with another educator whose name is associated with a major court decision for evolution, Susan Epperson. Photograph: Eugenie C Scott.

Donald W Aguillard was born in Ville Platte, Louisiana, on June 20, 1954. After graduating in 1975 from the University of Southwest Louisiana (now the University of Louisiana at Lafayette), he began teaching. In 1980, Don Aguillard was teaching biology at Acadiana High School in Lafayette, Louisiana, when he saw an advertisement in *The American Biology Teacher* asking teachers to call the ACLU if they wanted to challenge the Louisiana law requiring "balanced treatment" for evolution and creationism in public schools. Aguillard became the lead plaintiff in the case that would eventually be called *Edwards v Aguillard*. Many of Louisiana's biology teachers were prepared to avoid teaching evolution all together, rather than teach creationism; fewer than ten biology teachers agreed to participate in the lawsuit.

On January 10, 1985, US District Judge Adrian Duplantier ruled that Louisiana's "balanced treatment" law was unconstitutional. When Louisiana appealed the decision, the US Court of Appeals for the Fifth Circuit affirmed Duplantier's ruling by a vote of 8–7. When a federal court rules that a state law is unconstitutional, the US Supreme Court must consider hearing the case, and *Edwards v Aguillard* was argued there.

Wendell Bird represented the State of Louisiana claiming that the law had a primary secular purpose based on "fairness" and "academic freedom."

On June 19, 1987, in a 7–2 decision, the Supreme Court—noting that evolution has been "historically opposed by some religious denominations"—affirmed that Louisiana's "balanced treatment" law was unconstitutional.

Although *Edwards* diminished subsequent attempts to pass "balanced treatment" laws, many creationists were encouraged by a part of Justice Brennan's majority opinion stating that teaching a variety of scientific theories about the origins of humankind to schoolchildren might be validly done with the clear secular interest of enhancing the effectiveness of science instruction. They were also encouraged by the dissenting opinions of Justices Antonin Scalia and William Rehnquist, who argued that

> the people of Louisiana, including those who are Christian fundamentalists, are quite entitled, as a secular matter, to have whatever scientific evidence there may be against evolution presented in their schools. ... The body of scientific evidence supporting creation science is as strong as that supporting evolution. In fact, it may be stronger. Evolution is merely a scientific theory or "guess". ... Although creation science is educationally valuable and strictly scientific, it is now being censored from or misrepresented in the public schools ... [S]cientists discriminate against creation scientists so as to prevent evolution's weaknesses from being exposed.

After his trial, Aguillard continued to stress evolution in his classes, and in 1998 he earned a PhD from Louisiana State University. Aguillard, an award-winning school administrator, is currently the Superintendent of St Mary Parish schools in Louisiana.

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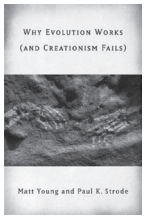
Summary of *RNCSE* 2011;31(1):3.1–3.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/6/11

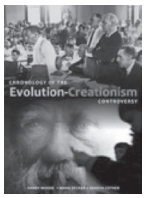


Why Evolution Works (and Creationism Fails) by Matt Young and Paul K Strode (New Brunswick [NJ]: Rutgers University Press, 2009; 224 pages). Reviewer **Mike Klymkowsky** writes that this book aimed at clarifying what distinguishes science from non-science *s*ucceeds overall, and would be suitable as a textbook for "courses that compare and contrast scientific and non-scientific approaches to biological questions." Klymkowsky appreciates the broad range of examples of evolution's explanatory power as well as the writing style, which he describes as "largely jargon-free and accessible," but noted a few errors of fact and regrets a "relative neglect of molecular-level mechanisms" in the presentation of evolutionary theory. While the book would probably not convince a creationist, it would be compelling to "the open-minded, rational, and intellectually curious."

Summary of *RNCSE* 2011;31(1):4.1–4.4; the full text is available from: reports.ncse.com/index.php/rncse/article/view/7/7

Am I a Monkey? Six Big Questions about Evolution by Francisco J Ayala (Baltimore [MD]: The Johns Hopkins University Press, 2010; 104 pages). Ayala is eminently qualified to write such a book, reviewer **Joel W Martin** observes, especially because of his irenic attitude toward faith. The book is "well-written, accurate, and concise, and it covers the main points of biological evolution likely to be questioned by non-specialists," although two of the questions Ayala addresses (What is DNA? and How Did Life Begin?) strike Martin as somewhat out of place. The final chapter (Can One Believe in Evolution *and* God?) is Ayala's "most important contribution ... and it will be well received by persons of faith" but also draw flak from those "opposed to any such reconciliation."

Summary of *RNCSE* 2011;31(1):5.1–5.4; the full text is available from: reports.ncse.com/index.php/rncse/article/view/8/8



Chronology of the Evolution–Creationism Controversy by Randy Moore, Mark Decker, and Sehoya Cotner (Santa Barbara [CA]: Greenwood Press, 2010; 454 pages). Calling the *Chronology* "accessible and endlessly fascinating," reviewer **David A Reid** praises it as "a veritable treasure trove of well-known and less well-known works" and suggests that it will serve students and teachers well, despite its $85 cost. But the text suffers from a degree of repetitiveness, and the authors frequently neglect the historical context of the ideas they consider, discussing them only with respect to future developments. (Reid gives the example of their discussion of Plato and Aristotle, which "ignores ... that Plato and Aristotle were struggling to explain how and why change could occur in an ordered universe.")

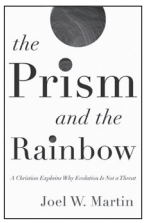
Summary of *RNCSE* 2011;31(1):6.1–6.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/9/9

Evolution, Creationism, and Intelligent Design by Allene S Phy-Olsen (Santa Barbara [CA]: Greenwood Press, 2010; 171 pages). Commending the book's organization and annotated bibliography, reviewer **Robert H Rothman** nevertheless complains of "the long and often irrelevant digressions" in the limited space of the book. While the discussion of the Scopes trial is good, *Epperson v Arkansas* and *Edwards v Aguillard* are not even mentioned, a serious omission. Many of the chapters are unfocused, and the discussion of theistic evolution is not coherently presented. Phy-Olsen "seems to accept some creationist arguments at face value, such as claims of gaps in the fossil records." There are a variety of errors of fact, some of which Rothman diagnoses as either "cheap shots" or manifesting a lack of understanding.

Summary of *RNCSE* 2011;31(1):7.1–7.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/10/10

God vs Darwin: The War Between Evolution and Creationism in the Classroom by Mano Singham (Lanham [MD]: Rowman & Littlefield, 2009; 192 pages). Reviewer **Stephen P Weldon** recommends *God vs Darwin*, but with reservations, for its treatment of the eighty-year history of legal battles over the teaching of evolution in American schools. Weldon praises Singham's ability to write clearly and succinctly, particularly on the legal issues, but observes that the book is mainly a synthesis, presenting no new research or perspectives. He describes the book as "lopsided" in its emphasis of the Scopes trial, expresses surprise at Singham's failure to cite Edward J Larson's *Trial and Error*, and regards his use of the term "religion" and his portrayal of "intelligent design" as stealth creationism to be imprecise and simplistic.

Summary of *RNCSE* 2011;31(1):8.1–8.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/11/2



The Prism and the Rainbow: A Christian Explains Why Evolution is Not a Threat by Joel W Martin (Baltimore [MD]: The Johns Hopkins University Press, 2010; 170 pages). Apparently taking students in high school or college as his primary audience, Martin is concerned to argue that there is no incompatibility in acceptance of evolution and belief in God. Reviewer **Matt Young** appreciates the defense of science, although he finds the discussion of science and faith inconsistent and the discussion of "theory" slightly muddled. Martin's description of evolution scants the evidence for evolution; his description of "intelligent design" conflates it with old-earth creationism, but clearly explains that there is no evidence for "intelligent design". Martin concludes with chapters on religion, the Bible, and what Christians ought to believe about evolution.

Summary of *RNCSE* 2011;31(1):9.1–9.3; the full text is available from: reports.ncse.com/index.php/rncse/article/view/12/12

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